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10/789,694

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Stephen M. Potter

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EXAMINER

MCGUTHRY BANKS, TIMA MICHELE

ART UNIT

PAPER NUMBER

1793

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/789,694	<b>Applicant(s)</b> POTTER ET AL.	
	<b>Examiner</b> TIMA M. MCGUTHRY-BANKS	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

Claims 1-26 are cancelled, Claims 27-32, 36 and 38-40 and Claims 33-35 and 37 are currently amended. Claims 27-40 are pending.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 37-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In Claim 37, the step of reclaiming said lump feed material occurs as a final step. This reads on reclaiming the lump feed material after leaving the direct reduction furnace. This teaching is not shown in the specification as originally filed.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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Claims 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable Meyer et al (US 3,645,717) in view of Fujita et al (US 4,367,091) and Ando et al (US 3,813,913).

Meyer et al teaches an iron ore reduction process comprising pelletizing oxidic iron ore, firing the pellets at 700-1050 °C and reducing the pellets (column 1, lines 69-72). Lumps read on pellets. The pellets are dried before they are fired (column 2, lines 66 and 67). The sponge iron pellets have high porosity. The time for heating the charge is 5-60 minutes (column 3, line 15). Regarding Claims 28 and 29, the temperature of the sponge iron pellet to the reduction process would be 150-350 °C, which contains the claimed temperature limitation. Further regarding Claim 29, the process reads on a storage bin. Regarding Claim 30, the sponge iron can be dried in the same unit it is fired (Meyer et al, column 2, lines 66 and 67) and is directly charged (line 70), reading on a thermally insulated charging system. Regarding Claim 31, the hot exhaust gases are used as firing gases (column 3, lines 31-33). However, Meyer et al does not teach providing feed material with micropores or the drying step in Claim 27.

Regarding providing feed with micropores, Fujita et al teaches fired iron ore pellets. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the iron ore in Meyer et al would have micropores, since Fujita et al teaches that in general, iron ore pellets have micropores that provide a relatively high degree of porosity (column 1, lines 39-41).

Regarding drying, Ando et al teaches a method for reducing iron in a rotary kiln (abstract), where the iron is compounded pellets or lumps or ore and a carbonaceous reducing agent (column 5, lines 43-49). Ando et al teaches drying in a traveling grate (column 7, lines 45-51). Pellets are dried to about 0.5-wt% water content prior to charging (column 9, lines 51-68).

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Although pellets are used in the example, one of ordinary skill in the art would expect to dry lumps to the same water content, since Ando et al discloses equal utility for lump and pellet feed. Although Ando et al does not disclose the drying temperature, it is well settled that where the principal difference between a claimed process and that taught by a reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al in view of Fujita et al and Ando et al as applied to claim 27 above, and further in view of the publication by U.S.S.

Meyer et al in view of Fujita et al and Ando et al discloses the invention substantially as claimed. However, Meyer et al in view of Fujita et al and Ando et al does not teach storing the feed material as in Claim 33. U.S.S. teaches storing approximately 6 month's supply near the furnaces (pp. 570-71). Six month's supply is within the range of at least one month. Although this storage requirement is discussed in relation to blast furnace production, the same would be expected for any facility utilizing the same feed material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the feed materials as taught by U.S.S., since ores are not often mined during the colder months. Further regarding the stockpile, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the ore stockpile in U.S.S. would be further fed to a bin in order to use the ore for processing.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al in view of Fujita et al, Ando et al and the publication by U.S.S.

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Meyer et al teaches an iron ore reduction process comprising pelletizing oxidic iron ore, firing the pellets at 700-1050 °C and reducing the pellets (column 1, lines 69-72). Lumps read on pellets. The pellets are dried before they are fired (column 2, lines 66 and 67). The sponge iron pellets have high porosity. The time for heating the charge is 5-60 minutes (column 3, line 15). The temperature of the sponge iron pellet to the reduction process would be 150-350 °C, which contains the claimed temperature limitation. However, Meyer et al does not teach providing feed material with micropores, storing the feed material or the drying step in Claim 34.

Regarding providing feed with micropores, Fujita et al teaches fired iron ore pellets. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the iron ore in Meyer et al would have micropores, since Fujita et al teaches that in general, iron ore pellets have micropores that provide a relatively high degree of porosity (column 1, lines 39-41).

Regarding storing the feed material, U.S.S. teaches storing approximately 6 month's supply near the furnaces (pp. 570-71). Six month's supply is within the range of at least one month. Although this storage requirement is discussed in relation to blast furnace production, the same would be expected for any facility utilizing the same feed material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the feed materials as taught by U.S.S., since ores are not often mined during the colder months. Further regarding the stockpile, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the ore stockpile in U.S.S. would be further fed to a bin in order to use the ore for processing.

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Regarding drying, Ando et al teaches a method for reducing iron in a rotary kiln (abstract), where the iron is compounded pellets or lumps or ore and a carbonaceous reducing agent (column 5, lines 43-49). Ando et al teaches drying in a traveling grate (column 7, lines 45-51). Pellets are dried to about 0.5-wt% water content prior to charging (column 9, lines 51-68). Although pellets are used in the example, one of ordinary skill in the art would expect to dry lumps to the same water content, since Ando et al discloses equal utility for lump and pellet feed. Although Ando et al does not disclose the drying temperature, it is well settled that where the principal difference between a claimed process and that taught by a reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al in view of Fujita et al, Ando et al and the publication by U.S.S.

Meyer et al teaches an iron ore reduction process comprising pelletizing oxidic iron ore, firing the pellets at 700-1050 °C and reducing the pellets (column 1, lines 69-72). Lumps read on pellets. The pellets are dried before they are fired (column 2, lines 66 and 67). The sponge iron pellets have high porosity. The time for heating the charge is 5-60 minutes (column 3, line 15). The temperature of the sponge iron pellet to the reduction process would be 150-350 °C, which contains the claimed temperature limitation. Regarding the type of direct reduction furnace, Meyer et al teaches fired pellets can be charged to rotary or shaft kiln (column 1, lines 39 and 47). Regarding the narrow temperature profile inside the furnace, applicant does not claim what this range would be; therefore, the disclosed temperature range reads on the claim. Regarding Claim 36, the temperature of the sponge iron pellet to the reduction process would be 150-350 °C, which contains the claimed temperature limitation. Regarding Claim 39, the hot

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exhaust gases are used as firing gases (column 3, lines 31-33). However, Meyer et al does not teach providing feed material with micropores, storing the feed material or the drying step in Claim 35.

Regarding providing feed with micropores, Fujita et al teaches fired iron ore pellets. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the iron ore in Meyer et al would have micropores, since Fujita et al teaches that in general, iron ore pellets have micropores that provide a relatively high degree of porosity (column 1, lines 39-41).

Regarding storing the feed material, U.S.S. teaches storing approximately 6 month's supply near the furnaces (pp. 570-71). Six month's supply is within the range of at least one month. Although this storage requirement is discussed in relation to blast furnace production, the same would be expected for any facility utilizing the same feed material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the feed materials as taught by U.S.S., since ores are not often mined during the colder months. Further regarding the stockpile, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the ore stockpile in U.S.S. would be further fed to a bin in order to use the ore for processing.

Regarding drying, Ando et al teaches a method for reducing iron in a rotary kiln (abstract), where the iron is compounded pellets or lumps or ore and a carbonaceous reducing agent (column 5, lines 43-49). Ando et al teaches drying in a traveling grate (column 7, lines 45-51). Pellets are dried to about 0.5-wt% water content prior to charging (column 9, lines 51-68). Although pellets are used in the example, one of ordinary skill in the art would expect to dry



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lumps to the same water content, since Ando et al discloses equal utility for lump and pellet feed. Although Ando et al does not disclose the drying temperature, it is well settled that where the principal difference between a claimed process and that taught by a reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 27-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 7,175,690 B2 in view of Fujita et al. However, US '690 does not claim providing a feed with micropores or the water content as in Claim 27. Regarding providing feed with micropores, Fujita et al teaches fired iron ore pellets. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the iron ore U.S. '690 would have micropores, since Fujita et al teaches that in general, iron ore pellets have micropores that provide a relatively high degree of porosity (column 1, lines 39-41). Regarding the amount of water, it would be expected that the process of US '690 would result in the same content of water, since the process conditions in the present invention and that of US '690 are substantially the same.

Claim 33 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. '690 in view of U.S.S. US '690 substantially claims the same invention. However, US '690 does not claim storing the lump feed material of at least one month as in Claim 33. U.S.S. teaches storing approximately 6 month's supply near the furnaces (pp. 570-71). Six month's supply is within the range of at least one month. Although this storage requirement is discussed in relation to blast furnace production, the same would be expected for any facility utilizing the same feed material. It would have been

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obvious to one of ordinary skill in the art at the time the invention was made to store the feed materials as taught by U.S.S., since ores are not often mined during the colder months. Further regarding the stockpile, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the ore stockpile in U.S.S. would be further fed to a bin in order to use the ore for processing.

Claims 34-36 and 38-40 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. US '690 in view of Fujita et al and U.S.S. US '690 substantially claims the same invention. However, US '690 does not claim providing a feed with micropores or the water content or storing the lump feed material of at least one month as in Claim 34. Regarding providing feed with micropores, Fujita et al teaches fired iron ore pellets. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the iron ore U.S. '690 would have micropores, since Fujita et al teaches that in general, iron ore pellets have micropores that provide a relatively high degree of porosity (column 1, lines 39-41). Regarding the amount of water, it would be expected that the process of US '690 would result in the same content of water, since the process conditions in the present invention and that of US '690 are substantially the same.

Regarding storing the feed material, U.S.S. teaches storing approximately 6 month's supply near the furnaces (pp. 570-71). Six month's supply is within the range of at least one month. Although this storage requirement is discussed in relation to blast furnace production, the same would be expected for any facility utilizing the same feed material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the feed materials as taught by U.S.S., since ores are not often mined during the colder months.

***Response to Arguments***

Regarding applicant's assertion that the examiner must choose between rejecting Claims 27-32 on the grounds of 35 U.S.C. 103(a) or rejecting them on the grounds of obvious-type double patenting, the claims of record still read on the relied upon art of record; therefore the rejection stands.

Regarding applicant's assertion of the improper rejection of Claims 27-32 on the grounds of obviousness-type double patenting is noted but not persuasive. The process of US '690 does not claim in Claims 1-5 the amount of time the instant Claim 27. Therefore, one would expect that the substantially same operating conditions would result in substantially the same result. There are no means claimed to achieve a degree of dryness.

Regarding the stockpile in Claims 33-35 and 37, applicant argues that the cited prior art is solely for the purpose of having inventory when the climate does not permit mining. The amended limitation is addressed above in the rejection of the claims. Regarding the amendment to Claim 35, the narrow temperature profile, as addressed above. Regarding Claim 37, the examiner addresses this claim above this office action. Regarding Satomi et al, this reference is not considered to be prior art and is not addressed in this office action.

Regarding amended Claim 37, the prior art of record does not read on the claim as written. However, JP 01152225 A teaches a device for drying and preheating granular ore that is incorporated between the horizontal pipes in the exhaust passage for exhaust gas from the outlet of a prereducing furnace. The ore is dried and preheated by the sensible heat of the exhaust gas and the combustion heat is charged into the prereducing furnace from an ore feed pipe through a

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discharge port and transient storage hopper (English abstract). The ore is partially reduced at 1200 °C (based on oral translation of page 142, column 1). The teaching of JP '225 reads on the steps of storing, reclaiming, drying, charging and increasing.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1793

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Examiner, Art Unit 1793

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